

**Toothbrush has cleaning head with flexible cleaning material cover welded to it**

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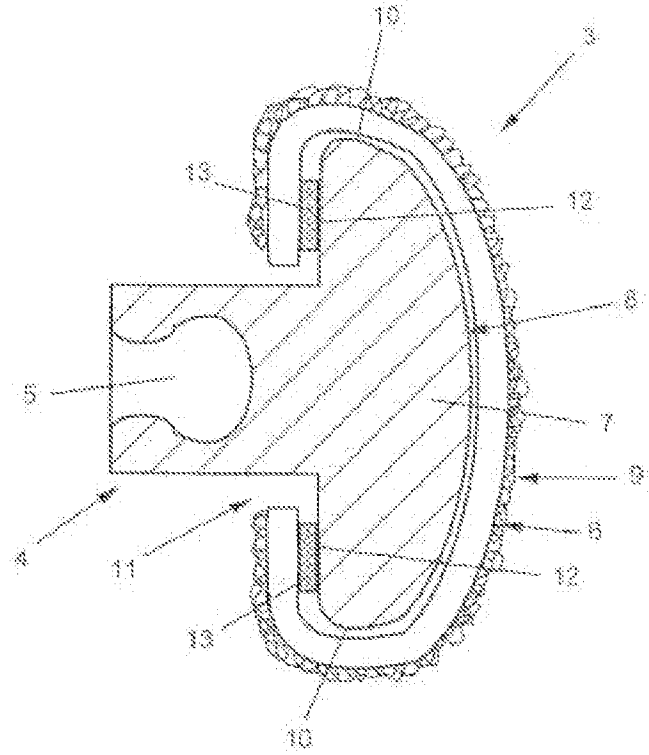
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Abstract of **DE 10028530 (A1)**

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The toothbrush has a handle and a cleaning head (3) with flexible cleaning material (6) fastened to it, esp. by welding, esp. ultrasonic welding. This may be a micro fiber material, a textile, or a bristle carrier. The flexible material is welded ring-like to a connection element (4) for the brush handle. The cleaning head may have a base plate (7) with the connection element on one side, and a profile (8) on the other side.



The instant invention concerns mouth space hygiene equipment, in particular a toothbrush with an holding element and these if necessary. releasable associated cleaning head, which carry a flexible material, as well as a method for manufacturing the mouth space hygiene equipment.

Such mouth space hygiene devices are in various form and embodiment in the market known and conventional. Bspw. 299 02 996 as well as in the German Utility Model 299 07 200 is such mouth space hygiene equipment described in the German Utility Model. Such mouth space hygiene equipment essentially exhibits an holding element, which endseits a cleaning head fixed or again-more releasable mount. Such cleaning heads are preferably again-releasable connected, so that these interchanged should be subject to become to be able, with the holding element, these to a certain wear or have from hygienic reasons interchanged to become. Such cleaning heads become manufactured in very high quantities.

So far a flexible material becomes associated by means of putting or compression joints the cleaning head. Such putting and/or. Compression joints require expensive manufacturing and assembly costs with the assembly of the single members. Besides such connections are not from large durations, whereby the flexible material if necessary. not fixed enough with the cleaning head connected is.

To create instant invention is the basis therefore object, mouth space hygiene equipment as well as methods manufacturing such mouth space hygiene equipment, with which in particular the costs of manufacture of its cleaning head reduced to become to be able, whereby besides a flexible design of the cleaning head is possible and on the other hand a fixed connection between cleaning head and flexible material, which is also from large durations, is to become manufactured.

To the solution of this object the features of the beside-ordered claims lead.

With the instant invention becomes the flexible material, which out bspw. Microfasertuch, textile fabric or bristle inertial fabric manufacture to be can, with the cleaning head bspw. over ultrasonic sealing procedures or thermoplastic welding processes fixed connected.

Prefered at least fixed welded partial in the region of a liaison vehicle of a base plate on an underside the flexible material become. A plurality of junctions pointlike, annulus-like or circle cut off-like and cleaning head know the corresponding connection between flexible material and/or. its underside of the base plate manufacture.

Then can on corresponding, costly wedging and tie-clip connections to getting jammed or clamping the flexible material opposite the base plate and/or. opposite the cleaning head to be done without.

In particular can become thereby a very high, also tear-fixed connection of the flexible material opposite the base plate, in particular the cleaning head manufactured, so that nevertheless the flexible material at an outside profile of the base plate flexible and if necessary. slippable and/or. is more deformable.

A profile can bspw to the generation of a different, selectable contour. lamella-like over single blades provided its, which ensure different contours of the cleaning head.

The contour can become through of various sizes or different strong formed blades generated also the production of a soft or hard or centralhard cleaning head. Also these can be from different hard materials manufactured and if necessary. different thick or high or different spaced to each other its. Thereby all contours leave themselves as bspw. half shell-like, mushroom-head-like or pyramid-like contours of the cleaning head manufacture. This is to lie in the frame of the instant invention.

The contour of the cleaning head should be complete by the flexible material coated, whereby the junction and/or the weld at the underside under any circumstances with cleaning the mouth the cleaning process does not disturb or the welds the cleaning operation, the skin in the mouth affected or injured.

Other advantages, features and details of the invention result from the subsequent description of preferred embodiments as well as on the basis the drawing; this shows in

Fig. 1 a schematic represented plan view on an holding element of mouth space hygiene equipment, in particular a toothbrush;

Fig. 2 a side view of the retaining element in accordance with Fig. 1 with a plug-on cleaning head;

Fig. 3 a schematic represented cross section by an embodiment of a cleaning head, provides with a flexible material;

Fig. 4 an enlarged represented cross section by other embodiment of a cleaning head in accordance with Fig. 5 along line IV-IV;

Fig. 5 a plan view on an other embodiment of a cleaning head with a plurality of blades;

Fig. 6 a cross section by the cleaning head in accordance with Fig. 5 along line VI-VI;

Fig. 7a and 7b of schematic represented cross sections by other embodiments of a contour of a cleaning head;

Fig. 8a to 8c schematic represented bottom views of a cleaning head with flexible material with different welds between flexible material and cleaning head.

In accordance with Fig. 1 exhibits mouth space hygiene equipment according to invention R, in particular toothbrush, an holding element 1, which is endseits a fitting member 2 associated, at which a cleaning head 3, like it in particular Fig. 2 points out, is definable. The cleaning head 3, like it in particular Fig. preferably again-releasable with the holding element 1 fixed points, is 2 out.

The cleaning head 3 exhibits a connecting element 4, which with the fitting member 2 cooperates. In the preferred embodiment the fitting member 2 ball-like formed is racable and can be pressed into a recess 5 of the liaison vehicle 4 pressed and. Simultaneous one becomes

ensured that the cleaning head 3 if necessary, light pivotable and articulated opposite the holding element 1 journaled is.

In the frame is to also be appropriate for the instant invention, bspw. to assign the cleaning head 3 the fitting member 2 ball-like, like it bspw. in Fig. 7a shown is. Then the corresponding fitting member reaches into a corresponding, here not represented recess of the retaining element 1.

The cleaning head 3 is with a flexible material 6, as bspw. Microfasertuch, textile fabric or bristle inertial fabric at least partial, preferred complete surrounded. Only the connecting element 4 is recessed of it. In the embodiment of the instant invention in accordance with Fig. 3 is the cleaning head 3 in accordance with Fig. 2 shown.

The cleaning head essentially consists 3 of a base plate 7, which exhibits on the one hand a profile 8. The profile 8 forms an outer contour 9 of the cleaning head 3.

In the present embodiment the cleaning head 3 is outward light curved formed and a base plate 7 is button-like formed, whereby their edge regions 10 are provided with corresponding radii. On the other side of the base plate 7 the connecting element attaches 4 with its recess 5 to this. This is preferably central in the base plate 7 arranged.

The outer contour 9 of the cleaning head 3 by the flexible material 6 complete is enclosed, only up to a region 11 of the liaison vehicle 4.

The flexible material 6 at least partial biased is drawn up over the outer contour 9 of the profile 8 of the cleaning head 3 and according to invention at its underside 12 at least partial fixed welded, so that a plurality of junctions 13 develop.

It proved as particularly favourable to connect the flexible material 6 by means of ultrasonic sealing procedures or thermoplastic welding processes with the underside 12 of the cleaning head 3. By this welding the flexible material very inexpensive and rapid can be connected with the cleaning head 3, in particular with the underside 12 of the base plate 7. A such connection is fixed and durably. Besides it is to be manufactured rapid and inexpensive.

Like in particular into the Fig. 8a to 8c shown is annulus-like, circle cut off-like, can be the junctions 13 around the connecting element 4 or pointlike provided, in order to connect the flexible material 6 with the underside 12 of the base plate 7 of the cleaning head 3 fixed. The region remains 11 5 recessed around the recess.

Thereby an high fixed, durable connection, which is to be manufactured extremely inexpensive, between base plate 7 and the flexible material becomes 6 formed.

In an other embodiment of the instant invention in accordance with Fig. 4 is an other cleaning head 3 querschnittlich shown, which is essentially likewise from a base plate 7 that vorzugweise central subsequent connecting element 4 with recess 5 formed, which exhibits a plurality of blades 14 on the other side of the base plate 7, which are 6 complete coated of the flexible material and are in described above manner the flexible material 6 13 with the base plate 7 connected fixed at the underside 12 over at least a junction.

The single blades 14 form a selectable contour 9, whereby the blades are 14 to each other spaced arranged. Preferably the blades are 14 if necessary. also the base plate 7 from a resilient deformable material manufactured. Can depending upon form and size and/or. Height of the single blades 14 the outer contour 9 changed become. Bspw. the contour can form 9 ball-cut off-like, pyramid-like or mushroom-head-like forms.

By a varying thickness of the single blades 14 influence can also in particular be taken on a cleaning behavior of the cleaning head 3. The complete flexible material 6 spans the single blades 14 as well as the base plate 7 and is in described above manner with these at their underside 12 attached.

In the embodiment in accordance with Fig. 5 is the single blades 14 shown, which are abragend preferably parallel on the base plate 7 and of this rectangular arranged.

Can to the generation bspw. a pyramid-like form, like it in particular in Fig. 6 shown is, each single blade 14 a different contour exhibit. The flexible material is also here 6 fixed with the underside 12 of the base plate 7 over the junctions 13 welded.

Into the Fig. 7a and 7b are respective other embodiments of the cleaning head 3 shown, which forms different contours 9 by the different arrangements and sizes of the blades 14. Here the invention no border is set.

Position number list

1 holding element

2 fitting member

3 cleaning head  
4 connecting element  
5 recess  
6 flexible material  
7 base plate  
8 profile  
9 contour  
10 edge region  
11 region  
12 underside  
13 junction  
14 blade

#### R mouth space hygiene equipment

1. Mouth space hygiene equipment, in particular toothbrush with an holding element (1) and these if necessary. releasable associated cleaning head (3), which a flexible material (6) carries, characterised in that the flexible material (6) fixed, in particular welded connected with the cleaning head (3) is.
2. Mouth space hygiene equipment according to claim 1, characterised in that the flexible material (in the region of a liaison vehicle (4) fixed, in particular welded connected with the cleaning head (3) is 6) at least partial.
3. At least mouth space hygiene equipment according to claim 1 or 2, characterised in that the flexible material (6) with an underside (12) of the cleaning head (3) partial fixed connected, fixed welded in particular is.
4. Mouth space hygiene equipment after at least one of the claims 1 to 3, characterised in that the flexible material (6) as Microfasertuch, textile fabrics or bristle inertial fabrics od. such. formed is.
5. Mouth space hygiene equipment after at least one of the claims 1 to 4, characterised in that the flexible material (6) with the cleaning head (3) punctually, ring-like or section-like with the cleaning head (3) welded is.

6. At least mouth space hygiene equipment after at least one of the claims 2 to 5, characterised in that around the connecting element (4) the flexible material (6) with the cleaning head (3) partial fixed welded is annulus-like.

7. Mouth space hygiene equipment after at least one of the claims 1 to 6, characterised in that the flexible material (6) by thermoplastic welding, in particular ultrasonic welding with the cleaning head (3) is more connectable.

8. Mouth space hygiene equipment, in particular toothbrush with an holding element (1) and these if necessary. releasable associated cleaning head (3), which a flexible material (6) carries, characterised in that the cleaning head (3) a base plate (7) exhibits, at which on the one hand that attaches at least connecting element (4) and on the other hand one if necessary. resilient profile (8) provided is.

9. Mouth space hygiene equipment according to claim 8, characterised in that the profile (8) curved, pyramid-like, querschnittlich triangle-like or mushroom-like to the receptacle and as carriers of the flexible material (6) formed is.

10. Mouth space hygiene equipment according to claim 8 or 9, characterised in that the profile (8) from a plurality of single to each other spaced blades (14) formed is, which abragen from the base plate (7).

11. Mouth space hygiene equipment according to claim 10, characterised in that the blades (14) in different, selectable distances of the base plate (7) associated are and from one if necessary. resilient deformable material as carriers of the flexible material (6) manufactured are.

12. Mouth space hygiene equipment according to claim 10 or 11, characterised in that the single blades (14) to the generation of a different selectable form of the profile (8) different contours (9) exhibit.

13. Mouth space hygiene equipment after at least one of the claims 10 to 12, characterised in that the flexible material (6) over the blades (14) of the cleaning head (3) and over the base plate (7) if necessary. biased and with this fixed connected is.

14. Method for manufacturing mouth space hygiene equipment, in particular a toothbrush with an holding element (1) and a this if necessary. releasable associated cleaning head (at least 3), which with a flexible material (6) will provide, characterised in that the flexible material (6)



partial fixed with the cleaning head (3) welded, in particular thermoplastic-welded or ultrasonic-welded becomes.

15. Process according to claim 14, characterised in that the flexible material (6) at an underside (12) or close of a liaison vehicle (4) of the cleaning head (3) with this welded becomes at least partial.

16. Process according to claim 14 or 15, characterised in that the flexible material (6) at least partly by punctual welds with the base plate (7) in the region of the liaison vehicle (4) pointlike, cut off-like or circle-like by ultrasonic welding or thermoplastic welding welded becomes.

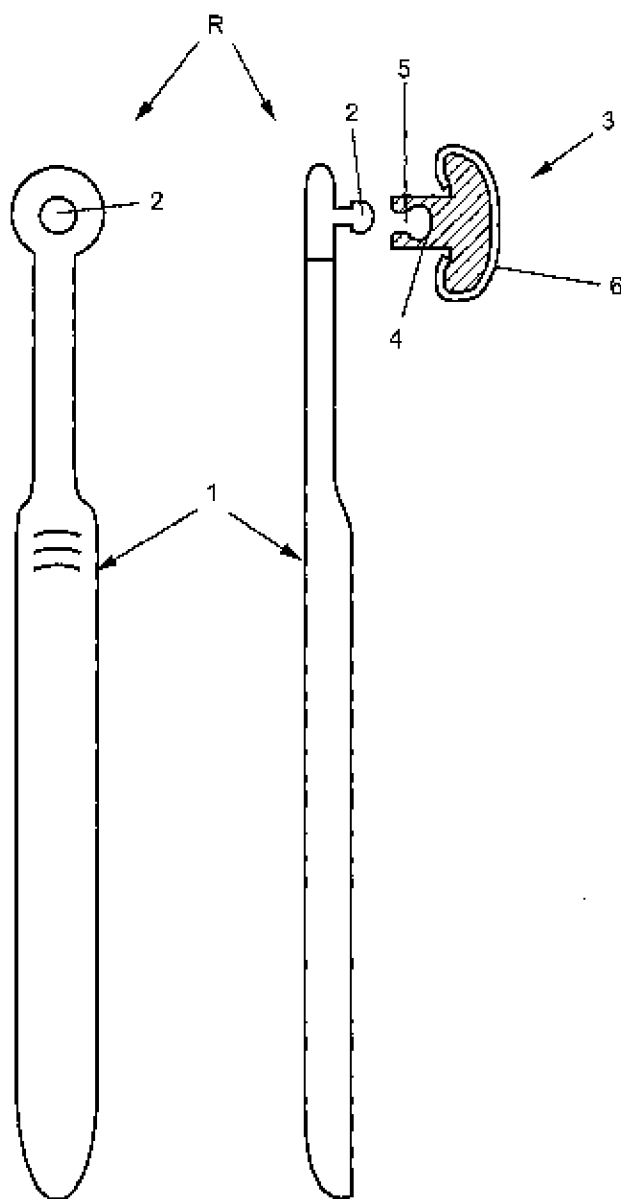


Fig. 1

Fig. 2

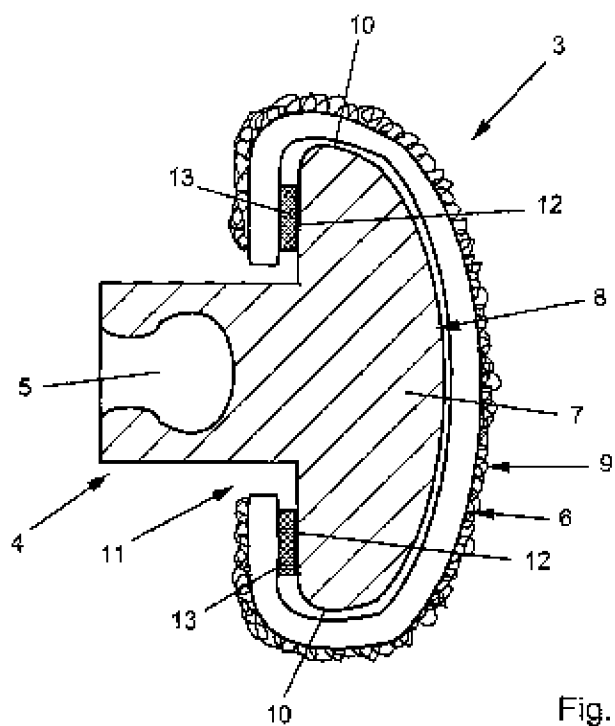


Fig. 3

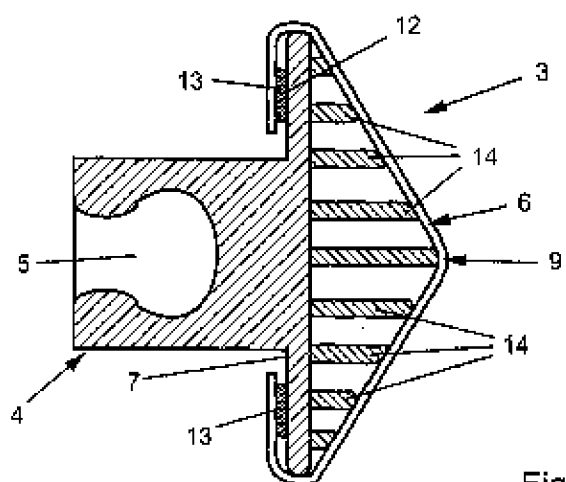


Fig. 4

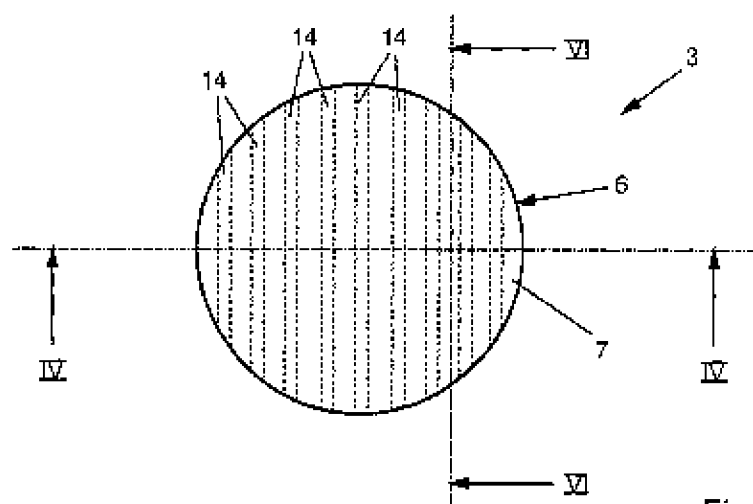


Fig. 5

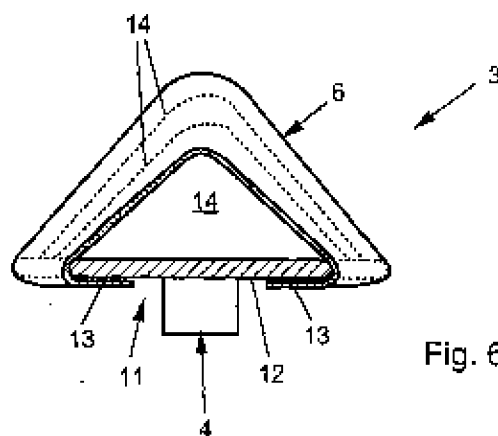


Fig. 6

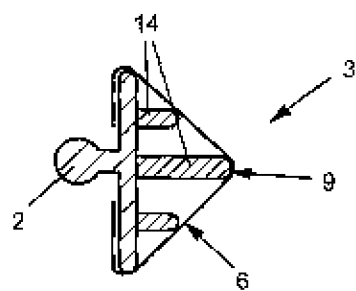


Fig. 7a

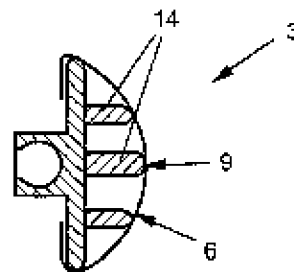


Fig. 7b

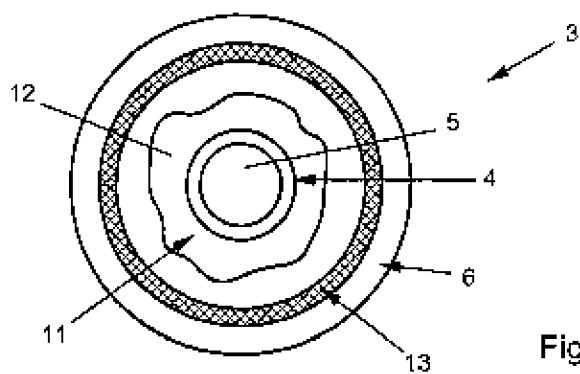


Fig. 8a

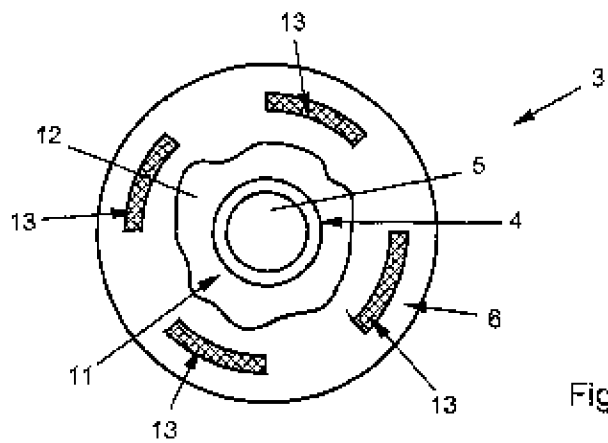


Fig. 8b

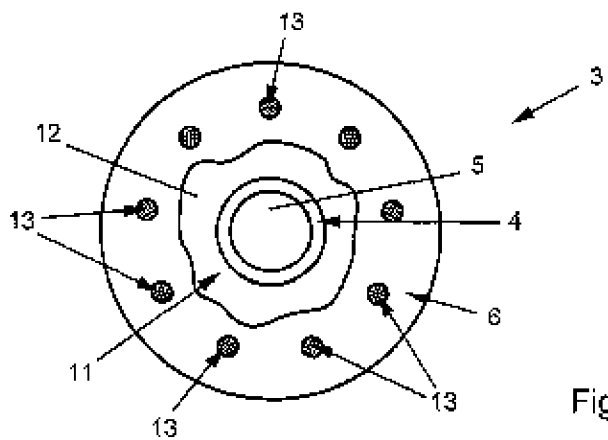


Fig. 8c